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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/553,143	04/20/2000	Philip L. Swan	0100.0000230	4441

7590 10/22/2002

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EXAMINER

TRAN, TRANG U

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 10/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/553,143

Applicant(s)

SWAN ET AL.

Examiner

Trang U. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herrera (US Patent 6,208,350 B1) in view of Faroudja (US Patent 5,754,248).

In consider claim 1, Herrera discloses all the claimed subject matter, noted 1) the claimed receiving at least one instruction for a 2-D/3-D engine to facilitate creation of an adaptive YUV 4:2:0-to-4:2:2 conversion is met by the 3D engine (col. 10, lines 16-49), and performing, by the 2-D/3-D engine, at least a conversion YUV 4:2:0-to-4:2:2 in response to the at least one instruction. However, Herrera does not particularly disclose that the 2-D/3-D engine is used for adaptively de-interlacing frame image from at least a first interlaced field.

Faroudja teaches a "universal" recording and transmission system for recording and transmitting both 24 fps (or 25 fps) motion picture film sources and non-film interlaced or progressively-scanned video sources in progressively-scanned video at a nominal frame rate of 24 or 25 frames per second (col. 2, lines 20-35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the "universal" recording and transmission system as taught by

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Faroudja into Herrera's system in order to record or transmit motion picture film sources and non-film interlaced or progressively scanned video sources.

In consider claim 2, the claimed storing the at least portion of the adaptively de-interlaced frame image for display is met by the buffer 56 of Herrera (col. 10, line 52 to col. 11, line 4).

In consider claim 3, the claimed retrieving, by a graphics processor display engine, the stored adaptively de-interlaced frame image for display on at least one display device is met by the memory controller 94 of Herrera (col. 10, line 52 to col. 11, line 4).

In consider claim 4, the combination of Herrera and Faroudja discloses all the limitations of the claimed invention as discussed in claim 1 above except for providing that wherein the step of performing adaptive de-interlacing by the 2-D/3-D engine includes executing 2D/3D instructions that result in performing median filtering.

The capability of median filtering the video signal to improve the quality of the video signal is old and well known in the art and therefore Official Notice is taken.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the well known median filter into Herrera's system in order to increase the quality of the video signal to be displayed.

In consider claim 5, the combination of Herrera and Faroudja discloses all the limitations of the claimed invention as discussed in claim 1 above except for providing wherein the step of performing adaptive de-interlacing by the 2-D/3-D engine includes executing 2D/3D instructions that result in performing spatio-temporal filtering.

The capability of spatio-temporal filtering the video signal to improve the quality of the video signal is also old and well known in the art and Official Notice is taken again.

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the well known spatio-temporal filter into Herrera's system in order to increase the quality of the video signal to be displayed.

In consider claim 6, the claimed controlling the 2-D/3-D engine to perform the adaptive de-interlacing prior to display by a display engine is met by the 3D engine of Herrera, col. 10, lines 16-49.

In consider claim 7, the claimed issuing 2D/3D instructions to the 2D/3D engine to carry out de-interlacing of lines of video data from interlaced fields is met by the 3D engine of Herrera, col. 10, lines 16-49.

In consider claim 8, the claimed wherein the at least one instruction includes at least of a: line inverting instruction, a scaling instruction and a blend instruction is met by the 3D engine of Herrera, col. 10, lines 44-49.

In consider claim 9, the claimed determining whether the at least one instruction is for the 2-D/3-D engine or for a display engine is met by the graphics accelerator 54 of Herrera, col. 10, line 52 to col. 11, line 17.

Claim 10 is rejected for the same reasons as discussed in claims 1, 3, and 9 above.

Claim 11 is rejected for the same reasons as discussed in claim 2 above.

Claim 12 is rejected for the same reasons as discussed in claim 5 above.

Claim 13 is rejected for the same reasons as discussed in claim 6 above.

Claim 14 is rejected for the same reasons as discussed in claim 7 above.

Claim 15 is rejected for the same reasons as discussed in claim 8 above.

Claims 16-19 are rejected for the same reason as discussed in claims 1-4, respectively.

Claims 20-23 are rejected for the same reason as discussed in claims 6-9, respectively.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Huang (US Patent No. 6,118,488) discloses method and apparatus for adaptive edge-based scan line interpolation using 1-D pixel array motion detection.

Segman (US Patent No. 6,239,842 B1) discloses method of de-interlacing video signals using a mixed mode spatial and temporal approximation technique.

Walters (US Patent No. 6,459,454 B1) discloses systems for adaptively deinterlacing video on a per pixel basis.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Trang U. Tran** whose telephone number is **(703) 305-0090**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **John W. Miller**, can be reached at **(703) 305-4795**.

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Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231


or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

TT TT
October 18, 2002


JOHN MILLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600